CHAPTER 5

Working with Facility Records

This chapter explains how to use CAMEO to keep track of information about facilities where hazardous materials are maintained. It explains how to access and use facility information already stored in CAMEO, how to create new CAMEO records for facilities, and how to use CAMEO to maintain Tier II information submitted by facilities in your area.

Where facility information is kept

You keep information about facilities in five related CAMEO modules. You can access all the information about a given facility from the facility's record in the Facilities module, which acts as a sort of central hub for information about that facility.

- In the Facilities module, you create a record containing the basic information about a given facility, such as its location, its owner, and the type of business it is. If you have created a site plan for the facility in a graphics program, you can link that plan to this facility record. You can also keep track of reports relating to each facility that have been submitted under the reporting requirements of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA). And you can link any

facility's record to a symbol for that facility that you place on a MARPLOT map, so that you can quickly see the facility's location in your community or use Screening & Scenarios or ALOHA to assess the potential hazard to the community posed by chemicals at the facility (see either "Using Screening & Scenarios to assess hazards" on page 137 or "Using ALOHA with MARPLOT and CAMEO" on page 189).

- In the Chemicals in Inventory module, you can create a record for each of the hazardous substances stored at a facility (mixtures as well as pure substances). Each Chemicals in Inventory record contains information such as the quantity of the substance stored at the facility, the conditions of storage, and the location in the facility where the substance is stored.
- In the Contacts module, you can create a record for each of the contact people for the facility, such as the emergency manager and owner.
- In the Screening & Scenarios module, you can use simple, automated methods to assess the hazards to the surrounding community from accidental releases from that facility, following the procedures described in the guidebook, *Technical Guidance for Hazards Analysis* (see "Bibliography" on page 276 to learn how to obtain a copy).
- In the Incidents module, you can keep records describing past accidental releases of hazardous substances from that facility. This information can be used for risk analysis.

Tier II information and CAMEO

You can store information submitted on Tier II reports in the Facilities, Chemicals in Inventory, and Contacts modules.[1] If you're familiar with Tier II forms, you'll notice that many of the data fields in the Facilities, Chemicals in Inventory, and Contacts modules are identical to data fields on Tier II forms.

1. Under the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA), facilities that maintain more than threshold amounts of certain hazardous materials must submit an annual chemical inventory report, called a Tier II form, to their state's State Emergency Response Commission (SERC), Local Emergency Planning Committee (LEPC), and local fire department. See "Sections 311 and 312: community right-to-know requirements" on page 270.

You can put Tier II data in CAMEO in either of two ways:

Manually entering data from print Tier II forms into CAMEO. To do this,

1. Create a new Facilities record for each submitting facility (see "Creating and editing facility records" on page 120).
2. Create a new Chemicals in Inventory record for each chemical or mixture maintained at that facility (see "Keeping track of the chemicals in a facility's inventory" on page 123). Figure 1 on page 108 shows the process.
3. Create new Contacts records for the contacts listed for each facility.
4. For each annual update, either:
   a. Edit the facility, inventory, and contacts records to update them as needed (to edit a CAMEO record, open the record, click the Edit button in the toolbar, make the needed changes, then press Save Changes), or
   b. Add new records for the new reporting year, if you would rather keep a set of records for each reporting year.

Importing a Tier2 Submit data file. To import a Tier2 Submit file, follow the procedure described in "Importing data from Tier2 Submit" on page 206. When you import a Tier2 Submit file, new Chemicals in Inventory records are created automatically for all the chemicals in each facility's inventory. Each such record contains all the imported data about the given chemical. New Contacts records are created automatically for the contacts listed in the Tier II form submitted by each facility.

Note: In the current version of CAMEO, it isn't possible for a facility manager to maintain records for that facility's Tier II chemicals in CAMEO, and then, at reporting time, export that information to Tier2 Submit in order to generate the submittable data file.

State fields in the Facilities module. Records in both the Facilities and Chemicals in Inventory modules contain a State Fields tab. This section is designed to support the emergency planning work of U.S. states that have developed their own reporting requirements in addition to the Tier II

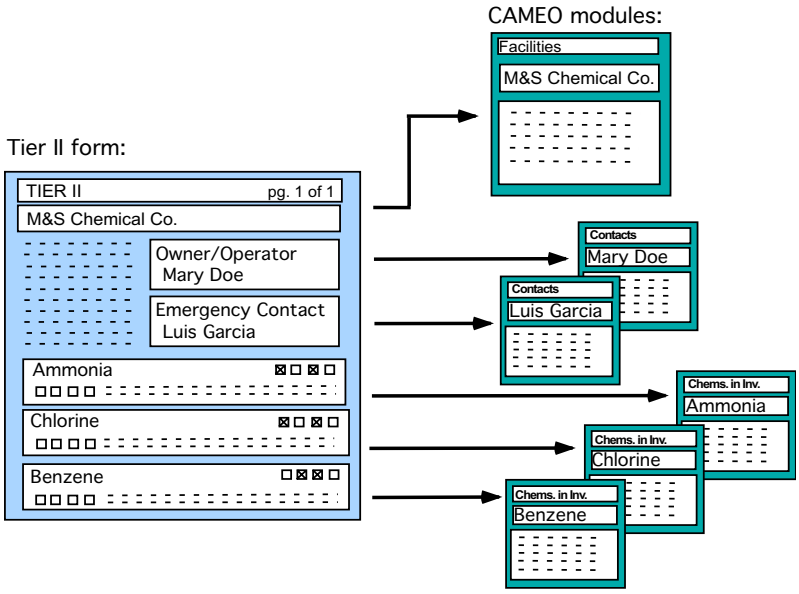


FIGURE 1. From a printed Tier II form, facility information is entered into a Facilities record; each contact person for the facility is represented by a Chemicals in Inventory record.

requirements specified in EPCRA, which apply to all 50 states. In these states, Tier II forms contain additional data fields, called **state fields** in CAMEO. CAMEO's state fields, located under the State Fields tab, represent those state-required fields, providing a place where people working in these states can maintain their reporting information.

As of early 2002, CAMEO contains the state fields required for the 2001 reporting year, for all states that have provided such fields to the CAMEO development team. If you work in a state that requires state fields, note that the **state labels file** will be updated each reporting year with the latest state fields information. Each year, you should

1. Download a new copy of this file ("StateLabels.CAM") from www.epa.gov/ceppo/cameo/.

2. Replace the existing StateLabels.CAM file in your CAMEOfm folder with the new file. This updates your copy of CAMEO with the latest state fields information.

Tier2 Submit supports state fields, so when you import Tier2 Submit files containing state field data for any state that has designated state fields, the state fields on your Facility records will be filled in. Be sure to update your state labels file before importing Tier2 Submit files. (See "Tier2 Submit™" on page 8 for more information about this software program.)

You also can manually add information to state fields on CAMEO records.

Accessing information about a facility

To see the information in CAMEO on a particular facility, you first search the Facilities module to find the record describing that facility. Once you've found that record, you then can review:

- that record itself, for basic information about the facility.
- records in the related modules, for additional information about the facility.

You can make either a basic search or a more advanced search to find a facility record.

Making a basic search for a facility record

Make a basic search when you just need to look up a facility by its name, address, or other straightforward piece of identifying information. Here's how:

1. Start the search in either of two ways:
   - While you're working in the Facilities module, from the Search menu, select Start Search.

- In the Navigator, click Search for a Facility. (To access the Navigator, click the Navigator toolbar button or, from the File menu, select Show Navigator.)

2. In the Basic Search dialog, fill out the information you have about the facility you're looking for.

   For your "Operator for text fields," choose "Contains characters" to search for part of a word, phrase, code, or number; or "Contains word starting with" to search either for the first part or all of a word, phrase, code, or number.

   Check Table 1 on page 114 to see explanations of the other choices in the dialog.

   If you fill in two or more criteria, CAMEO will search for facilities that match all criteria. For example, if you type "Haymarket" in the City field and choose "Yes" from the Has EHS Chemical in Inventory menu (as shown in Figure 2), you'll see a list of all the facilities in Haymarket that store or use Extremely Hazardous Substances (EHSs).

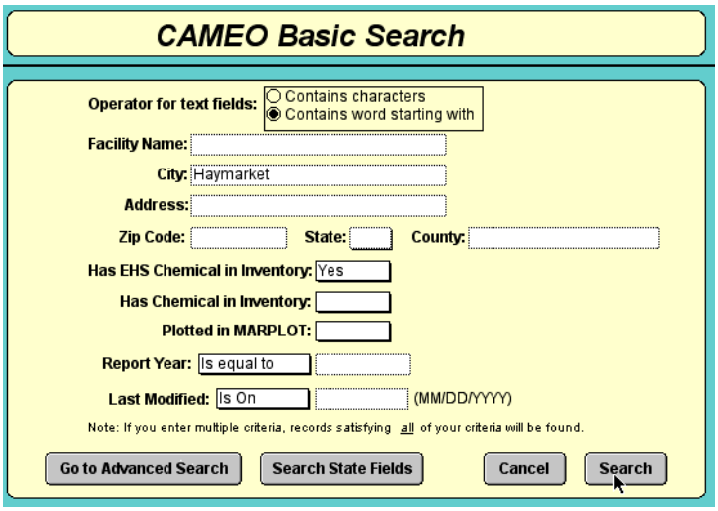


FIGURE 2. Searching for the facilities in Haymarket that maintain EHSs.

3. Click Search to start your search.

   CAMEO will run the search and then display either a list of the facilities that match your criteria or a message, "No records found," if no facilities match your criteria.

4. Double-click the name of any facility in the Found Facilities list to view that facility's record in Record view.

   Whenever you want to return to the Found Facilities list, press the List button in the toolbar. If you'd like to view the list of all facilities again (as opposed to just the ones that met your search criteria), from the Search menu, select Clear Search.

Some basic search examples:

- To find the most recent records for facilities in a particular zip code, type that zip code in the Zip Code box, then for Report Year, choose the "is equal to" operator, and type the most recent report year in the box.
- To find the facilities in a particular county that store EHS chemicals (Extremely Hazardous Substances), from the Has EHS Chemical in Inventory menu, choose "Yes," and then type all or part of the name of the county in the County box.

Making an advanced search for a facility record

You can make an advanced search whenever you need to use other criteria than the ones available for a basic search. Here's how:

1. Start your search just as you would start a basic search, by either

   (a) clicking Search for a Facility in the Navigator.

   (b) while you're working in the Facilities module, selecting Start Search from the Search menu.

2. Click Go to Advanced Search.
3. Click Select field.
4. Click the radio button for:
   - Facilities—to search for a facility by basic information about it, such as its name or address.

- Chemicals in Inventory—to search for a facility that stores or uses a particular chemical.
- Contacts—to search for a facility for which a particular person is a contact (e.g., an emergency contact or the facility's owner).
- Incidents—to search for a facility where a particular incident occurred.
- Mixture Components—to search for a facility storing a mixture made up of particular components.
- Screening and Scenarios—to search for a facility for which you have prepared hazards analysis screenings or scenarios, using the Screening & Scenarios module.
- Storage Locations—to search for a facility where a chemical is stored at a particular location (e.g., "Warehouse 43").

5. In the list of searchable data fields, click the name of a field, then click Select.
6. Choose an operator from the popup menu (e.g., "contains characters," "is equal to," or "is greater than").

   Your choices for operator depend on the kind of data you're searching for: whether it's text, a number, or a date, or either/or information (for which your choices are "yes" or "no").
7. Type the word, phrase, number, or code to search for in the box.

   Leave the box empty if you don't need to type something in—e.g., when you choose an operator like "is empty" or "is not empty."
8. Press Search to start your search.

Adding more choices. You can make an advanced search for records that match more than one criterion. To add a second criterion to your search,

1. While you're working in the Advanced Search dialog, press Add a Choice to add a second criterion to search for.
2. Follow steps 3 through 7 in "Making an advanced search for a facility record" on page 111 to set up the search for that criterion.
3. Indicate whether to search either for (a) records that meet *both* your criteria (click "Search for all of the following") or (b) records that meet *either* criterion (click "Search for any of the following").

4. If you want to add another choice, press Add a Choice again. You can add up to three more choices, for a total of four choices. If you need to search for more than four criteria, first run a search for the first four of your criteria, then choose either Append Search (for a search for *any* of the criteria) or Subset Search (for a search for *all* your criteria) from the Search menu to add additional criteria (see "Append searches and subset searches" on page 254).
5. Press Search to start your search.

You can save any set of advanced search criteria to reuse later. See "Saving searches" on page 253 for instructions.

Some advanced search examples:

- To find all the facilities that store or use chemicals that pose a fire hazard, search Chemicals in Inventory for Fire Hazard (is) "YES."
- To find all the facilities in Haymarket that store or use chlorine, search Facilities for City contains characters "Haymarket" AND search Chemicals in Inventory for Chemical Name contains characters "chlorine."
- To find facilities owned by a particular person, search Contacts for Contact Type contains characters "owner" AND Last Name contains characters "<last name of that person>" (and if necessary) AND First Name contains characters "<first name of that person>."
- To find all the facilities in Haymarket that store chlorine in quantities averaging 500 pounds or more, search Facilities for City contains characters "Haymarket" AND search Chemicals in Inventory for Chemical Name contains characters "chlorine" AND search Chemicals in Inventory for Average Amount on Site is greater than or equal to "500."

Understanding the information in facility records

Once you've found the record for a facility in the Facilities module, you can view the information about it in either of two ways:

- Click tabs on the facility's record to review most of the information about that facility.
- Select Show Related from the Record menu to access Chemicals in Inventory, Contacts, Incidents, and Screening & Scenarios records for the facility.

Check Table 1 for definitions of the various kinds of information shown on each Facilities record and to see how to access each kind of information about a facility.

TABLE 1. Items in Facilities records.

Item	Description
Shipper	Check this box if this facility is a shipper of chemicals.
Report Year	The reporting year in which the Tier II information contained in the record was submitted by the facility. See "Sections 311 and 312: community right-to-know requirements" on page 270.
Facility Name	Name of the facility.
Department	Complete if the record is for a particular department of a facility, rather than for the entire facility.
Site	Complete these boxes if the facility has more than one physical site location.
Under the Address tab:	
Street Address	Street address of the facility, as well as the county (or borough or parish), fire district, and country where it's located, and the closest cross street to the facility.
Mailing Address	Mailing address for the facility.
Email	Email address for the facility or a contact person for the facility.
Under the Facility Phones tab:	
Type	Type of phone number (e.g., 24-hour, emergency, office). Pull-down menu in Edit mode.
Phone	Phone number.

TABLE 1. Items in Facilities records. (Continued)

Item	Description
Under the Contacts tab:	
Last/First Name	Name(s) of the contact.
Title	Title of the contact.
Organization	Organization represented by the contact (if different from the facility).
Under the Chemical Inventory tab:	
CAS	CAS number of the chemical in the facility's inventory.
Chemical Name	Name of a chemical in the facility's inventory.
RIDS	Click this button to see the response recommendations in the matching Chemical Library record, *if* either the name for the substance in the Chemical Name box or the CAS number in the CAS box matches the name or CAS number of a chemical in the Chemical Library, or you've linked the name of this chemical to a Chemical Library record. (If the name or CAS number matches multiple chemicals, you'll see a list of matching chemicals to choose from; double-click any name to see this chemical's record).
Under the Checklist tab:	
Submitted general site plan...	Click this box if the facility has submitted a general site plan to state and local emergency planners (see "Section 301-303: emergency planning" on page 268).
MSDS received with Tier II forms	Click this box if a Material Safety Data Sheet (MSDS) has been received from this facility along with a Tier II form.
Is facility subject to the Clean Air Act (112r)?	Click if facility is subject to CAA 112(r). See "CAA 112(r)" on page 275.
Does facility store EHS chemicals...?	Click if facility uses or stores EHS chemicals and is subject to the requirements of EPCRA Section 302 (40 CFR § 355). See "Section 301-303: emergency planning" on page 268.

TABLE 1. Items in Facilities records. (Continued)

Item	Description
Are dikes or other safeguard measures employed?	Click if passive safeguards such as dikes, berms, enclosures, or drains are used to mitigate accidental hazardous releases in the facility.
Site coordinate abbreviations submitted	Click if a list of site coordinate abbreviations were submitted that correspond to buildings, lots, areas, etc., located throughout the facility. See EPCRA 312 Tier II Reporting instructions (www.epa.gov/ceppo/pubs/t2-instr.pdf).
Date Tier II signed	Date when the Tier II form submitted by this facility was signed. See "Sections 311 and 312: community right-to-know requirements" on page 270.
Date Tier II received	Date when the Tier II form submitted by this facility was received. See "Sections 311 and 312: community right-to-know requirements" on page 270.
Signature	Name of owner/operator or authorized representative who signed the Tier II Chemical Inventory Form.
Checked automatically if items present in CAMEO	Boxes are automatically checked if there are records for this facility in the Chemicals in Inventory, Screening & Scenarios, and/or Incidents modules, and/or if the record for this facility is linked to a symbol on a MARPLOT map.
Under the ID Codes tab:	
Number of employees on site	The maximum number of employees on site at any time.
State Fees Total	Total fees (if any) collected by the state for Tier II reporting.
Type	Type of ID Code (e.g., Dun and Bradstreet, SIC, NAICS). Pull-down menu in Edit mode.
ID	ID code number. (In Edit mode, either type a number or choose a code number from the ID menu in the cases of codes such as SIC, for which a specific set of code numbers has been defined.)

TABLE 1. Items in Facilities records. (Continued)

Item	Description
Description	Description of the kind of facility represented by this ID code. (In Edit mode, type a description or, if this is a SIC or NAICS code, select a description from the pull-down menu.)
Under the State Fields tab:	
State Fields	On annual Tier II reports submitted by facilities, some states require additional data fields beyond those fields required on all Tier II forms. Once you have entered the 2-letter abbreviation for a state under the Address tab, CAMEO automatically displays all fields required by that state, as well as any optional fields also used on Tier II reports in that state. See "State fields in the Facilities module" on page 107.
Under the Map Data tab:	
Latitude/Longitude	Latitude and longitude of the facility, expressed as decimal values.
Method for determining latitude and longitude	Code and description of the method by which latitude and longitude were measured. Pull-down menu in Edit mode.
Description of location identified by latitude and longitude	Code and description of the location for which latitude and longitude were measured. Pull-down menu in Edit mode.
Record is linked to MARPLOT object	This box is checked if this record is linked to an object on a MARPLOT map (see "Linking map objects to CAMEO records" on page 183).
Under the Site Plan tab:	
Site Plan names	A list of the names of site plan files associated with this facility. Double-click the name of any site plan file to display that site plan in another view. (To add or edit site plans, see "Adding and editing site plans" on page 121.)
Under the Notes tab:	
Notes	Keep your own notes about this facility here.

Viewing a facility's map location. A Facilities record in CAMEO can be linked to a symbol that represents the facility's location on a MARPLOT map (for instructions, see "Linking map objects to CAMEO records" on page 183). To find out whether a facility record has been linked to a map symbol, click the Map Data tab, and check whether the Record is linked to MARPLOT object box is checked (as at left). If it is checked, the record is linked.

Record is linked to MARPLOT object ☒

If a facility record has been linked to a map symbol, you can view that symbol and map, as follows:

1. Either find and select the facility's record or open the record in Record view.
2. From the Sharing menu, select MARPLOT, then Show on Map.

   MARPLOT will come forward, and will display the map, centered on the symbol (a facility symbol on a map is shown in Figure 3).

FIGURE 3. A facility symbol on a MARPLOT map.

Making and printing reports on facilities

You can make three kinds of print reports from the Facilities module:

- a report on a single facility.
- a report on multiple facilities.
- a set of mailing labels for a given set of facilities.

Making a report for a single facility. To create and print a report for just one facility:

1. Working in the Facilities module, either (a) in the list of facilities in List view, click on the name of the facility, or (b) double-click on that facility name to open its record in Record view.
2. From the File menu, select Make Report.
3. Check to be sure that the Current Record button is selected.
4. Click the checkbox for each kind of data to be included in the report.
5. Click Make Report. You'll see a preview of the report.
6. Click Print, if you're satisfied with the preview. Otherwise, click Cancel, make any changes you'd like to the data, then click Make Report again.

Making and printing a report for multiple facilities. To include more than a single facility in your report:

1. First, open the Facilities module and then choose either option below:
   - To include all your Facilities records in the report, choose Show All Records from the Record menu to clear any existing found set.
   - To include just certain records in the report, run a search, choosing your search criteria so that just the records you want in your report will be included in the found set. See "Accessing information about a facility" on page 109 for more information about searching for facility records.
2. From the File menu, select Make Report.
3. Check to be sure that the Found Set button is selected.
4. Click the checkbox for each kind of data to be included in the report. (Some of the information about a facility is in records in related modules. For example, if you click the Contacts checkbox, information from

records in the Contacts module for this facility will be included in the report.)

5. Click Make Report. You'll see a preview of the report.
6. Click Print if you're satisfied with the preview. (Otherwise, click Cancel, make any changes you'd like to the data and records to be included in the report, then click Make Report again.).

Making and printing a set of mailing labels. To make a set of 1-inch by 2 5/8-inch mailing labels for some or all of the facilities in your Facilities module:

1. First, follow steps 1 through 3 in "Making and printing a report for multiple facilities" on page 119.
2. Click Mailing Labels. You'll see a preview of your mailing labels. From the File menu, select Print Report to print the labels.

Creating and editing facility records

As you add information about a facility to CAMEO, you can create records in the five facility-related modules: Facilities, Chemicals in Inventory, Contacts, Incidents, and Screening & Scenarios. Below are the procedures for adding and editing records in these modules.

Adding a new facility record and data. You add a new facility record in any of three ways:

- creating the new facility record manually, working in the Facilities module and following the instructions below.
- importing a Tier2 Submit data file. When you import a Tier2 Submit data file, CAMEO automatically creates a new record for each facility in that file, along with new Chemicals in Inventory and Contacts records for that facility. See "Importing data from Tier2 Submit" on page 206 for more details and instructions for importing a file.
- transferring data from someone else's copy of CAMEO. See "Transferring data between different copies of CAMEO" on page 212.

To create a new facility record manually:

1. In the Facilities module, from the Record menu, select New Facility.

   You'll see a new, blank Facilities record, automatically in Edit mode.

   Fill out the record with the information you have on the facility. See Table 1 on page 114 for the definitions of all the data fields in a Facilities record.

   - *To add a contact for the facility,* follow the steps in "Adding contact information for a facility" on page 136.
   - *To add a Chemical in Inventory record*, follow the steps in "Keeping track of the chemicals in a facility's inventory" on page 123.
   - *To add a Screening & Scenarios record for a chemical in the facility's inventory*, follow the instructions in "Using Screening & Scenarios to assess hazards" on page 137.
   - *To add a phone number for the facility,* click the Facility Phones tab (click Edit if you aren't in Edit mode), then click within the upper-most blank table row directly below the "Type" heading. In the menu of phone number types, click to select a type. Type the phone number to the right of the menu in the same table row.
   - *To add an Incidents record for an incident at the facility*, follow the steps in "Adding and editing Incidents records" on page 171.
2. When you've added all your information about the facility, click Save Changes.

   You can edit the facility record, or any related record in the Contacts, Chemicals in Inventory, Screening & Scenarios, or Incidents modules later, whenever you need to, by either selecting the record in List view or opening it in Record View, then clicking the Edit button in the toolbar. Make the needed changes, then click Save Changes.

Linking a facility record to a map symbol. To link a facility record to a symbol representing that facility on a map in MARPLOT, follow the steps in "Linking map objects to CAMEO records" on page 183.

Adding and editing site plans. If you have created a site plan for a facility in a graphics program, you can link that plan to the record for that facility in the Facilities module, as follows:

1. Draw the site plan in a graphics program of your choice, then save it in any of the following graphic file formats: JPEG, TIFF, and GIF, which work in both the Macintosh and Windows versions of CAMEO, as well as BMP and PCX, which work only in the Windows version of CAMEO.

   Both on a Macintosh and in Windows, the name of the site plan file must include a 3-character extension denoting the file type: .jpg (*not* .jpeg) for JPEG files, .tif for TIFF files, .gif for GIF file, .bmp for BMP files, .pcx for PCX files.
2. Place the site plan file in the SitePlans folder on your hard drive (site plan files must be kept in this folder). On a Macintosh, you'll find that folder inside the CAMEO folder. In Microsoft Windows, you'll find it inside the CAMEO folder on the drive where you installed CAMEO (usually the C: drive).
3. On your Facilities record, click the Site Plan tab, then click the Edit button in the toolbar.
4. Type or paste the file name of the site plan file into the box to the left of the Add button. Include the file name extension (.jpg, .bmp, or .gif).
5. Press Add.

   You'll see the name of the plan in the list of site plans under the Site Plan tab.
6. Click Save Changes. Now you can open and view the site plan whenever you need to, by double-clicking its name.

To edit an existing site plan, reopen it in the graphics program you used to create it, make the needed changes, then save the file under the same name you used before.

To delete a site plan from a Facilities record,

1. Open the record in Record view, click the Site Plan tab, click the Edit button in the toolbar,
2. Click on the name of that site plan, click Remove, then click Save Changes.
3. Delete the site plan file from your SitePlans folder if you have no more need of the file. Deleting a site plan from a record does not delete the site

plan file itself; it remains within the SitePlans folder inside the CAMEO folder unless you remove it.

Tip: You can keep photos of facilities in the SitePlans folder, as well as site plan files. Photos should be in JPEG format.

Keeping track of the chemicals in a facility's inventory

Keep records describing the hazardous chemicals stored or used at a given facility in the Chemicals in Inventory module. A Chemicals in Inventory record can include descriptions of each chemical's physical state, storage conditions and locations, and quantities routinely on site. You can create records both for single substances or for mixtures. (You also can create Chemicals in Inventory records for routes along which hazardous materials are transported; see "Keeping track of chemicals transported along a route" on page 168.

When you follow the steps in this section to add a chemical to a facility's inventory record, you're actually adding a new record to the Chemicals in Inventory module; information about that chemical also will be displayed in the Facilities record.

Chemicals in Inventory and Tier II data. You can use the Chemicals in Inventory module to maintain information about hazardous substances in facility inventories that was submitted to you on Tier II forms. See "Tier II information and CAMEO" on page 106.

Manually creating a Chemicals in Inventory record

Whenever you create a new Chemicals in Inventory record for a chemical, you need to decide whether to use a name or synonym[2] for the chemical that matches an name or synonym shown on either a record in the Chemical Library or on one or more other Chemicals in Inventory records.

To check for a match, you can use the **Look Up Chemical** button. In the Name box of your new record, you type either a whole name or synonym, or as many of the first few characters of the name or synonym as you're sure of (more details are explained in "Guidelines for looking up chemicals" on page 127). You then click Look Up Chemical, and you see two lists, each under a separate tab (Figure 4 on page 125). One shows the names and synonyms on Chemical Library records that match what you've typed. The second list shows matching names and synonyms on your existing Chemicals in Inventory records. If you select any of the names or synonyms in either list, it will replace what you've typed, and you can be sure that you have a match. (You can click Cancel to avoid replacing what you've typed.). You can use the Look Up Component button the same way when you add mixture components to your Chemicals in Inventory records.

Generally, we recommend that you use Look Up Chemical or Look Up Component to ensure that the names or synonyms you use match Chemical Library records. For one thing, using matching names or synonyms ensures that you'll be able to quickly access the response recommendations for inventory chemicals when you need to (via the RIDS or View RIDS buttons, discussed below).

However, you might not always want to use matching names or synonyms, and CAMEO doesn't require you to. If you simply don't click Look Up Chemical (or Look Up Component in the case of a mixture component), CAMEO will accept whatever name you type on your new record. You might want to avoid looking up a chemical if you're creating a Chemicals in Inventory record to contain information from a Tier II form. If you want the name shown on that record to match the name shown on the Tier II form, even if the name on the form is misspelled or is an unusual synonym or trade name that doesn't appear in the Chemical Library, don't click Look Up Chemical.

2. CAMEO distinguishes between the name for a chemical shown in the Chemical Name box—which is unique for each substance in the Chemical Library—and the synonyms for that name listed under the Synonyms tab on each Chemical Library record. Many synonyms are shared by multiple chemicals. The name in the Chemical Name box was called the "preferred name" in the previous version of CAMEO.

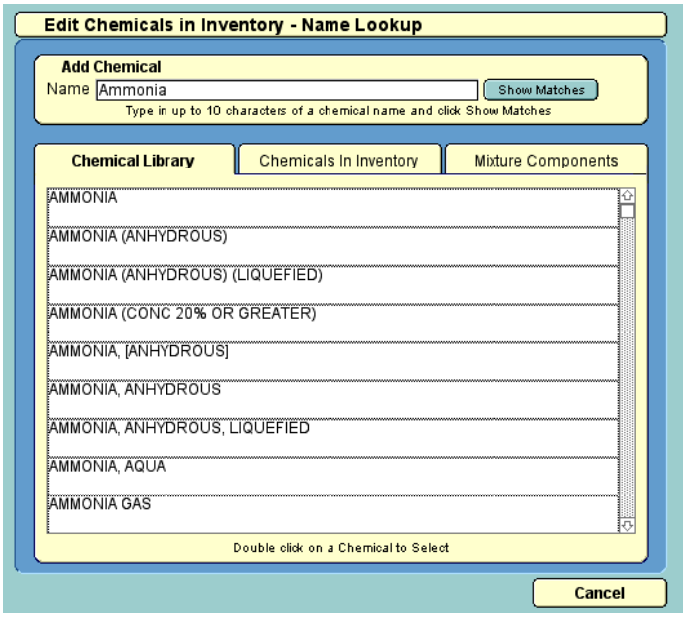


FIGURE 4. List of chemical names from Chemical Library records that match "Ammonia." (Clicking the Chemicals in Inventory or Mixture Components tab displays matching names for chemicals or mixture components shown on Chemicals in Inventory records.)

To manually create a new Chemicals in Inventory record for a substance in a facility's inventory:

1. In the Facilities module, open the record for the facility in Record view.
2. Click the Chemical Inventory tab, then click the Edit button in the Toolbar.
3. Click New Chemical in Inventory.
4. *If you're adding a single substance (as opposed to a mixture), then*
   a. Type either the chemical's name or its CAS number in the Chemical Name or CAS # box. When you type a CAS number, you must type the entire CAS number (either with or without hyphens; CAMEO will put the hyphens in if you leave them out).

If you plan to check for a name or synonym match, then type either the whole name (or synonym) or, if you aren't sure of the exact spelling, as many of the first few letters of the name as you're sure of. Check "Guidelines for looking up chemicals" on page 127 for tips.

b. If you want to check for a name match, click Look Up Chemical. Otherwise, skip down to step c.

You'll see a list of all the names and name synonyms in the Chemical Library that match what you've typed (Figure 4 on page 125). For example, if you type "ammonia," the list will include "ammonia," "ammonia, anhydrous," "ammonia, aqua," and all other names and synonyms that start with the word "ammonia." Under separate tabs, you'll also see all matching names for substances and mixture components in other Chemicals in Inventory records. Double-click the name that matches your chemical. The name that you select replaces any text you typed in the Chemical Name box (the CAS # box is unaffected). Click Cancel to avoid replacing what you've typed in the box

c. Click the EHS Substance checkbox if this is an Extremely Hazardous Substance (EHS) and the checkbox is not checked. (The checkbox is automatically checked only if you type the CAS number of an EHS, click Look Up Chemical, and then select the chemical's name.)

If you're adding a mixture of two or more substances, then

a. Type the name of the mixture in the Chemical Name box.

b. Click the Components tab.

c. In the topmost blank row under the Components tab, type either the first component's name or its entire CAS number. If you plan to check for a name or synonym match, then type either the whole name (or synonym) or, if you aren't sure of the exact spelling, as many of the first few letters of the name as you're sure of. Check "Guidelines for looking up chemicals" on page 127 for tips on entering names.

d. If you want to check for a name or synonym match, click Look Up Component. Otherwise, skip this step. You'll see a list of the names and name synonyms in the Chemical Library that match what you've typed. Under separate tabs, you'll also see all matching names of substances and mixture components in other Chemicals in Inventory

records. Double-click the name that is the best match for your chemical. The name that you select replaces any text you typed in the Chemical Name box (the CAS # box is unaffected). Click Cancel to avoid replacing what you've typed in the box.

e. Click the EHS checkbox if this is an Extremely Hazardous Substance (EHS) and this checkbox is not checked. The checkbox is automatically checked only if you type the CAS number of an EHS, click Look Up Component, and then select the chemical's name.

f. In the % box, type either the percentage by weight or by volume of this component in the mixture, then, from the percentage units menu (under the "Wt/Vol" heading), choose either Weight or Volume.

g. Repeat steps c through g for each component of the mixture.

5. Fill out the information about the storage conditions and locations of the substance or mixture. Refer to Table 3 on page 132 for the definitions of each of the fields on a Chemicals in Inventory record.
6. Click Save Changes to save your changes to the Chemicals in Inventory record. You'll be returned to the Facilities record that you started from.
7. Click Save Changes again, to save the changes to the Facilities record.

Once you've created the record, if you'd like to create a link from the name and/or CAS number on the new Chemicals in Inventory record to a specific Chemical Library record, follow the directions in "Using the Adjust Link button" on page 128.

Guidelines for looking up chemicals. When you click Look Up Chemical or Look Up Component, CAMEO checks through the Chemical Library records to find chemical names matching the text you enter. It also checks through the names in all your existing Chemicals in Inventory records. However,

- Only the first 10 characters are considered, both in the text you enter and in the chemical names. Entering "PROPYLTRICHLOROSILANE" will provide the same matches as entering "PROPYLTRIC".
- The lookup attempts to find only chemical names that begin with the text you enter. To find "BORIC ACID" you cannot enter "ACID"; instead, enter "BORIC" or "BORIC ACID".

- If your search text contains characters like "," or ")" or spaces, names may be displayed that do not exactly match in the position of those characters. Suppose you want to find "1,2,4-TRIMETHYLBENZENE". If you enter "1,2,4", the list will include "12418 RED". To avoid this, type a longer string of characters like "1,2,4-TRI".
- On the other hand, if your lookup fails to locate the desired name, try entering fewer characters. Entering "1-BETA-D2"' results in no matches, but "1-BETA-D" results in several, including "1-BETA-D-2'-DEOXYRIBOFURANOSYL-5-FLUOROURACIL", possibly the desired name.
- If all else fails, click Cancel to leave the Chemicals In Inventory editing window, open the Chemical Library, and search for the chemical name, specifying "Contains characters." Once you find the desired name (in the Synonyms tab), note precisely its first 10 characters. Return to Chemicals In Inventory, click Edit, enter those 10 characters, then click Look Up Chemical.

Using the Adjust Link button. This button is visible on a Chemicals in Inventory record once you have saved your editing changes. You can use it to link a particular Chemical Library record with either (a) a chemical name or (b) a combination of a chemical name and a CAS number that you've typed in one or more of your Chemicals in Inventory records. You would use this button only when you're sure that a particular Chemical Library record matches the name or combination of name-and-CAS number on a Chemicals in Inventory record. Generally, a link is useful in either of two circumstances:

- You want to be sure that you'll be able to readily access the response recommendations and other information about a chemical from its Chemicals in Inventory record (you would do this by clicking the View RIDS button on that record) or from a Facilities or Routes record (you would click the RIDS button next to the name of the chemical in the inventory).
- You want to use the Screening & Scenarios module to predict a hazard zone for the chemical shown on the Chemicals in Inventory record (see "Using Screening & Scenarios to assess hazards" on page 137). You would *not* need to make a link if the name shown on the Chemicals in Inventory record matches just one Chemical Library record. That name

must match either (a) the name shown in the Chemical Name box on *only one* Chemical Library record, or (b) an official EHS name (in a few cases, this name differs from the name in the Chemical Name box). To find out the number of matching Chemical Library records, click the View RIDS button on the Chemicals in Inventory record of concern. If there are multiple matching Chemical Library records, then you *would* need to make a link. (Also, The Chemical Library record must be for an EHS. If the EPCRA EHS Chemical box is checked, it is.)

Important: Because you make a link not between two records, but between either a name or name/CAS number and a record, the links you make can affect multiple Chemicals in Inventory records. For example, if you link "Nitric Acid" on one of your Chemicals in Inventory records to the Chemical Library record for "NITRIC ACID, FUMING," then any other Chemicals in Inventory records for "Nitric Acid" also will automatically be linked to the Chemical Library record for "NITRIC ACID, FUMING".

Inadvertently linking to the wrong Chemical Library record associates the wrong response recommendations with a chemical in an inventory. To avoid inadvertent links, when you plan to link names to Chemical Library records, choose relatively specific chemical names, such as "Nitric Acid, 40%," rather than more general names like "Nitric Acid."[3] We also recommend not making a link if you aren't sure that a particular Chemical Library record matches the chemical name or name and CAS number combination that you've included on your Chemicals in Inventory record(s).

An alternative to using Adjust Link is to use Look Up Chemical to be sure that you've chosen a correctly spelled name for the chemical. Once you've done that, clicking View RIDS will display a list of all the Chemical Library records that match that chemical name.

Before you make a link, click View RIDS on the Chemicals in Inventory record (or the RIDS button next to the chemical's name under the Chemical Inventory tab on the related Facilities record). There is no need to make a

3. You also could choose to use a unique name, such as "Nitric Acid in Process 7," on the linked Chemicals in Inventory record to ensure that the link will not affect other Chemicals in Inventory records for nitric acid.

link if you're satisfied with the results you obtain. (See Table 2 on page 131 for more help in making this determination.)

Otherwise, to make a link,

1. Open the Chemicals in Inventory record in Record mode.
2. Click Adjust Link.
3. When asked whether you wish to create a link, click Yes. The Chemical Library module will be displayed.
4. Find and select the Chemical Library record you want to link to. See "Searching for a Chemical Record" on page 78 for instructions for searching the Chemical Library for a record.
5. From the Link menu, select Link this Record.

Tip: You can first search the Chemical Library to find the record you want to link to, and then follow the steps above to create the link.

To remove a link that you made in error, click Adjust Link, then click Remove Link.

Whether you want to use Look Up Chemical and/or Adjust Link in a particular situation depends on your project at hand and your goals for it. Table 2 on page 131 is a quick-reference decision aid showing when you might want to use one or the other of the buttons, and when you might not.

TABLE 2. Decision table for looking up names and linking to records.

If you need to...	Then do this:
Make sure a chemical name matches a name or synonym in the Chemical Library.	Type the name, then click Look Up Chemical to check for names and synonyms in the Chemical Library that match what you've typed.
Retain a name on a Chemicals in Inventory record that *doesn't* match CAMEO's name for the chemical (for example, a name on a submitted Tier II form).	Type the name and *don't* click Look Up Chemical. (You can use Adjust Link if you know which Chemical Library record matches the name you're using.)
Use Screening & Scenarios to plot hazard zones for a chemical.	Use Adjust Link unless the name on the Chemicals in Inventory record matches just one Chemical Library record (either the name in the Chemical Name box or the official EHS name). The Chemical Library record must be for an EHS (if the EPCRA EHS Chemical box is checked, it is).
Ensure you can quickly access the right response recommendations during an incident response.	Use Adjust Link unless the name and/or CAS number on the Chemicals in Inventory record matches only the Chemical Library record(s) that correctly describe the chemical (in some cases—for example, a chemical sometimes stored at different solution strengths—you might want more than one Chemical Library record to match the Chemicals in Inventory record).

Items in Chemicals in Inventory record

Table 3 explains the items shown on Chemicals in Inventory record.

TABLE 3. Items on a Chemicals in Inventory record.

Item	Description
Facility/Route	Filled in automatically with either the name of the facility that maintains this substance or the name of the transportation route along which this substance is transported.
Dept.	Filled in automatically with the department or division of a facility.
City	Filled in automatically with the city where the facility or route is located.
State	Filled in automatically with the state where the facility or route is located.
In Inventory	Automatically checked if this is an inventory record for a facility.
In Transit	Automatically checked if this record is for a chemical associated with a transportation route.
EHS Substance	Click this checkbox if the chemical (or one of the components of the mixture) is one of the Extremely Hazardous Substances identified by EPA.
Trade Secret	Click this checkbox if the formula for this substance is a trade secret.
Report Year	Filled in automatically with the report year shown on the related Facilities, if this is an inventory record for a facility. Should be the year for which this chemical inventory information applies (typically, the reporting year in which the Tier II form or data file was submitted). Not editable.
MSDS	MSDS number for chemical (provided by manufacturer).
Chemical Name	The name of the chemical.
CAS #	The Chemical Abstract Service number for the substance.

TABLE 3. Items on a Chemicals in Inventory record. (Continued)

Item	Description
View RIDS	Click this button to see the RIDS record for the chemical shown on this record. If you do not see a RIDS record, see "Manually creating a Chemicals in Inventory record" on page 123.
Adjust Link	Click this button to make or change the link between a Chemicals in Inventory record and a Chemical Library record. See "Using the Adjust Link button" on page 128.
Under the Location tab:	
Amount	The amount of the substance stored or transported.
Unit	Amount units (mass or volume). Pull-down menu in Edit view.
Type	The letter code for type of storage (click Type to see a list of type code definitions). Pull-down menu in Edit view.
Press	The number code for storage pressure (click Press to see a list of pressure code definitions). Pull-down menu in Edit view.
Temp	The number code for storage temperature (click Temp to see a list of temperature code definitions). Pull-down menu in Edit view.
Location	Short description of the location of the stored (or transported) substance.
Under the Physical State & Quantity tab:	
Pure/Mixture	Click Pure if the substance is in pure form; Mixture if it is a mixture.
Solid/Liquid/Gas	Click these checkboxes to indicate the physical state(s) of the stored or transported substance.
Fire	Click this checkbox if the substance is a fire hazard (e.g., flammables, combustible liquids, and oxidizers).

TABLE 3. Items on a Chemicals in Inventory record. (Continued)

Item	Description
Pressure	Click this checkbox if the substance is a "sudden release of pressure" hazard (e.g., explosives and compressed gases).
Reactive	Click this checkbox if the substance is a reactive hazard (e.g., water reactives, unstable reactives, and organic peroxides).
Acute/Chronic	Click one or both of these checkboxes if the substance poses either acute (immediate) or chronic (delayed) health risks. Examples of acute health hazards include toxics, corrosives, irritants, and sensitizers; chronic health hazards include carcinogens.
Max Daily Amount/Max Code	Type the maximum amount of the substance stored or transported, then select the appropriate code for maximum amount. This is the same as the reporting range code used on Tier II forms.
Average Daily Amount/ Ave Code	Type the average amount of the substance stored or transported, then select the appropriate code for average amount. This is the same as the reporting range code used on Tier II forms.
Max. amount in largest container	Type the maximum amount (in pounds) of the substance stored or transported in a single container. or in interconnected vessels.

TABLE 3. Items on a Chemicals in Inventory record. (Continued)

Item	Description
Under the Components tab: Each component of a mixture is described in a table row under this tab. All rows should be blank in the case of a pure substance.	
EHS/CAS/Component/ %/Wt/Vol	Working from left to right in Edit mode, filling out one row for each mixture component: click the EHS checkbox if the component is an Extremely Hazardous Substance; type the component's CAS number; type the name of the component (click Look Up Component to check for a name match with a Chemical Library record or other Chemicals in Inventory record); type the percentage by weight or volume of the component within the mixture, then select either Weight or Volume as percentage units.
Under the Dates tab:	
Report Year from January 1 to December 31	Filled in automatically with the report year shown on the related Facilities, if this is an inventory record for a facility. Should be the year for which this chemical inventory information applies (typically, the reporting year in which the Tier II form or data file was submitted). Not editable.
Chemical identical to previous year	Click this checkbox if the information about this substance is identical to the information submitted during the previous year.
Days on Site	The number of days during the reporting year that the substance was found at this site.
Date Tier II Signed	Date when the Tier II form was signed by the facility owner or operator. Filled in automatically with the date shown on the related Facilities record; not editable.
Date Tier II Received	Date when the Tier II form was received. Filled in automatically with the date shown on the related Facilities record; not editable.

TABLE 3. Items on a Chemicals in Inventory record. (Continued)

Item	Description
Under the State Fields tab:	
State Fields	On annual reports submitted by facilities, some states require additional data fields beyond those fields required on all Tier II forms. CAMEO automatically displays all state-required fields under this tab, along with any optional fields used on annual facility reports in that state.
Under the Notes tab:	
Notes	Keep your own notes about this substance here.

Adding contact information for a facility

You can create records in the Contacts module that contain contact information for people representing a facility or other kind of organization or business. When you add a contact for a facility, you're actually adding a new record to the Contacts module. Information about that contact will also be displayed in the facility's record in the Facilities module.

To add a record for a contact for a facility (to add other kinds of contacts to the Contacts module, see "Contacts" on page 162):

1. Find and open the Facilities record for the facility for which you want to add a contact record.
2. Click the Contacts tab, then click the Edit button in the Toolbar.
3. Click Add Contact.

   You'll see a list of all contacts in the Contacts module.
4. Either
   - Click on the name of a contact already in the list, then click Select. You would do this if a contact for the facility is already in the list, because you already added a Contacts record for that person (perhaps because he or she is a contact for more than one facility).

Note: You can associate the same contact record with more than one facility by repeating steps 1 through 4 for each of the facilities for which this person is a contact.

- Click Add New to add a new Contacts record. You would do this if the contact is not already in the list (because you haven't previously created a Contacts record for that person). You'll see a new, blank contacts record. Fill in the information about the new contact (refer to Table 2 on page 164 for the definitions of each of the fields on a Contacts record), then click Save Changes.

Note: A new Contacts record that you create by clicking New Contact from a Facilities record will be associated with that Facilities record, even if you don't type the name of the facility, or other identifying information about the facility, on the contact record.

Note: New Contacts records for facility contacts will automatically be added to your copy of CAMEO whenever you import a Tier2 Submit data file that contains contact information. See "Importing data from Tier2 Submit" on page 206.

Adding records for incidents at a facility

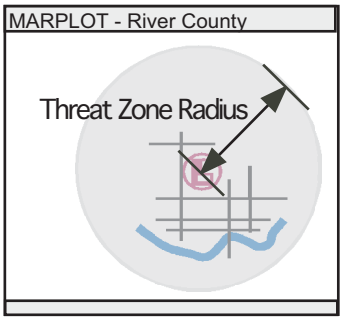
Use the Incidents module to record incidents, such as accidental spills and releases, at given facilities (or routes). To create a record in the Incidents module that's associated with a particular facility, follow the steps in "Adding and editing Incidents records" on page 171.

Using Screening & Scenarios to assess hazards

You can use CAMEO's Screening & Scenarios module to assess the hazards to your community from accidental releases of locally stored hazardous chemicals. Such an assessment is called a **hazards analysis**. You can use

the results of your hazards analysis to prepare emergency response plans for your community. The basic procedures for hazards analysis are described in *Technical Guidance for Hazards Analysis: Emergency Planning for Extremely Hazardous Substances* (1987). This guidebook was prepared by the U.S. Environmental Protection Agency (EPA), the Federal Emergency Management Agency (FEMA), and the U.S. Department of Transportation (DOT), and is available online at www.epa.gov/swercepp/p-tech.htm. The procedures described in the *Technical Guidance* were developed to help community planners, especially members of Local Emergency Planning Committees (LEPCs), meet the provisions of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA; see "EPCRA" on page 266).

The *Technical Guidance* describes calculations you can make to estimate the size of the area around a chemical storage facility or along a transportation route that could be affected by an accidental release of a hazardous chemical. This area is called the **threat zone**. It may also be called the **vulnerable zone** or the **screening zone**, to reflect the particular type of hazards analysis you perform (as discussed below).



Screening & Scenarios is essentially a calculator you use to estimate the **radius** of a threat zone (a threat zone radius is shown at left). To do this, you enter a set of simple conditions to describe an accidental chemical release at a chemical facility or along a transportation route. Screening & Scenarios then estimates the radius of the threat zone around the facility or along the route, using the *Technical Guidance* calculations. If you have a MARPLOT map of your area, you also can plot threat zones on your map.

You can estimate a threat zone radius only for Extremely Hazardous Substances (EHSs), chemicals that have been identified by the U.S. Environmental Protection Agency as acute inhalation toxic threats and that have been listed under EPCRA. There are 356 EHSs. Find more EHS information at www.epa.gov/ceppo/ep-chda.htm#ehs. To check whether a chemical of concern is an EHS, find its record in the Chemical Library, then click the Regulatory Information tab. If the EHS checkbox is checked, the chemical is an EHS (see Figure 5 on page 141).[4]

Important: Never use Screening & Scenarios as an emergency response tool or for meeting the requirements of Section 112(r) of the 1990 Clean Air Act. See "What are the differences between Screening & Scenarios, ALOHA, and RMP endpoint distances?" on page 152.

Choosing between *screening* and *scenarios* calculations

When you use Screening & Scenarios, you need to choose whether to estimate the threat zone using either:

1. EPA's "credible worst case assumptions" to make *screening* calculations, or
2. atmospheric and chemical information that you judge to be more typical of the region and facility, in order to make *scenarios* calculations.

About screening calculations

When you use EPA's worst-case assumptions (shown in Table 4), you're performing a screening, and the threat zone is typically called a screening zone. In a screening, you estimate screening zones for all EHSs that are either

- stored above their specified Threshold Planning Quantity (TPQ) at chemical facilities within a community.
- transported along a local route in quantities greater than the TPQ.

To see the TPQ for any EHS, find the Chemical Library record for that EHS, click the Regulatory Information tab, then check the EHS Threshold Planning Quantity box (see Figure 5 on page 141). If a facility in your area

4. There are more than 356 records for EHSs in the Chemical Library, because there are multiple records for some EHSs that occur in different solution strengths or mixtures.

stores more than the TPQ quantity of an EHS, it should be included in your screening project.

TABLE 4. Worst-case assumptions used for screening zone estimation.

Atmospheric stability class = F	Indicates very stable, nighttime atmospheric conditions. See Table 6 on page 151.
Wind speed = 3.35 miles per hour	On average, a chemical cloud can travel the farthest downwind at this relatively low wind speed.
Wind direction = any direction	Wind direction can't be predicted in advance. Because an escaping chemical cloud could potentially travel in any direction away from its point of release, the screening zone forms a circle around the potential release point. The zone therefore does not represent the area that could be affected during a release; the part of the zone that is affected would depend on the wind direction during the release.
Ground roughness = Open Country	The chemical cloud travels across flat, rural terrain that presents no obstacles to air movement.
Level of concern = the value listed in the Technical Guidance for the EHS of concern	This is a conservative estimate of the chemical concentration that might cause adverse health effects. A screening zone encompasses the area around the potential release point within which ground-level concentrations of pollutant could reach or exceed your level of concern.
Amount released = maximum quantity in vessel or interconnected vessels	The maximum quantity of a chemical that can be contained in a single storage vessel or in a group of interconnected vessels within the facility under examination. Release is from ground level.
Release duration = 10 minutes, or depends on evaporation or volatilization rate	Depends on the chemical's state. Solids in powder or solution form and gases are expected to be released within 10 minutes. The duration of a liquid or molten solid's release depends on its rate of evaporation or volatilization.

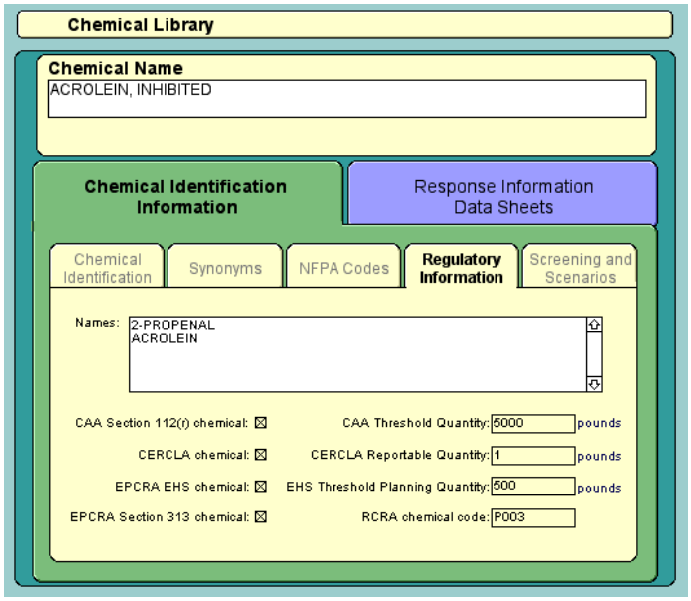


FIGURE 5. This Chemical Library record shows that acrolein is an Extremely Hazardous Substance (EHS), with a Threshold Planning Quantity (TPQ) of 500 pounds.

Once you have estimated your screening zones, the *Technical Guidance* describes in detail the remaining steps of a hazards analysis. Briefly, those steps are:

1. use your estimated screening zones as an aid in identifying the populations and critical facilities that might be placed at risk by a worst-case, accidental release. This gives you a way to estimate the greatest possible severity of the consequences of a release.
2. estimate the likelihood of a given release.
3. use your estimates of the greatest possible severity of release consequences and the likelihood that the release will occur to estimate the overall risk associated with a particular chemical for each facility and transportation route.

4. differentiate between high-priority and low-priority risks to your community. You might choose to focus first on high-priority risks when preparing emergency plans.

About scenarios calculations

If you change at least one of the screening assumptions, you are making a *scenario calculation* instead of a screening calculation. You might choose to make a scenario calculation if you thought that one or more of the worst-case assumptions for weather, release amount, level of concern, and/or other circumstances of a release did not represent likely release circumstances for a facility. For example, you might change wind speed and stability class to fit historical weather data (check with the National Climatic Data Center, lwf.ncdc.noaa.gov/oa/ncdc.html, to obtain historical data for your area). You can then find the size of a threat zone under more typical weather conditions rather than the worst-case conditions. When you make scenarios instead of screening calculations, the threat zone is typically termed the *vulnerable zone* to distinguish it from a screening zone.

You can use both the screening and scenarios features in Screening & Scenarios. Use the screening assumptions to compare the relative risks to your community from the worst possible releases of all chemicals of concern, both at fixed facilities and along transportation routes. Once you have completed your initial screening, you can construct scenarios to explore how changing your release assumptions might influence the size of the vulnerable zone. (You also could use ALOHA to further investigate potential release scenarios; see “Using ALOHA with MARPLOT and CAMEO” on page 189.)

Before estimating a threat zone

Before you begin, you need to make the following preparations:

1. Create a Facilities or Routes record, and link it to a map object, following the instructions in either “Linking symbol objects to records” on page 184 for a Facilities record, or “Linking transportation routes to CAMEO records” on page 185 for a Routes record. Any Screening & Scenarios records you create for the facility or route will become indi-

rectly linked to the same map object, and you'll then be able to plot a threat zone for that facility or route on the map.

2. Create a Chemicals in Inventory record for a chemical that's either maintained at the facility (follow the steps in "Keeping track of the chemicals in a facility's inventory" on page 123), or routinely transported along the route (follow the steps in "Keeping track of chemicals transported along a route" on page 168).

   To run a screening calculation, you must enter a value for Max amount in largest container.

3. Check that the chemical is an EHS, if you don't already know: open its Chemical Library record in Record view, click the Regulatory Information tab, then check whether the EPCRA EHS Chemical box is checked. If it is checked, the chemical is an EHS.

Estimating a screening zone

Once you've made the preparations shown above, follow the steps below to estimate the radius of a screening zone for a particular EHS at a facility or along a route:

1. Select the Chemicals in Inventory record for the chemical for which you want to estimate a threat zone, then select New Screening/Scenario Record from the Record menu. If you are then told...
   - ...that the record is not linked to a Chemical Library record, then link the chemical name on the Chemicals in Inventory record to the Chemical Library record for that chemical (see "Manually creating a Chemicals in Inventory record" on page 123).
   - ...that you first must enter the maximum amount in the largest container, then click OK, open the Chemicals in Inventory record in Record view, click the Edit toolbar button, click the Physical State & Quantity tab, type an amount in pounds in the Max amount in largest container box, then click Save Changes.
   - ...that there is not enough information on the Chemical Library record, then the chemical is not an EHS, and you can't create a Screening & Scenarios record for it.

2. Click Screening when asked whether you want to create a screening record or alternative scenario.

   Information about the stored chemical and the facility or route where it's stored or transported will be copied onto a new Screening & Scenarios record, which will be displayed in Edit mode.[5]

   Note: For each Chemicals in Inventory record, you can create just one screening record (which you can edit whenever you like). You can create as many alternate scenario records as you like.

3. Type a name for the screening in the Screening Name box.
4. The chemical's physical state at 68°F—solid, liquid, or gas—is automatically filled in. If the chemical is a liquid stored at or above its boiling point, select Near-Boiling from menu to the right of the Liquid button. If it is a liquid stored below its boiling point, select Ambient from the menu. If it is a solid, select Solution if it's in solution, Powder if it's in powdered form, or Molten if it's in molten form. Your choice influences how CAMEO makes threat zone calculations (see the *Technical Guidance* for more details about how the calculations are made).
5. Type a diked area in square feet if the chemical's container is surrounded by a dike.
6. Click Estimate Threat Zone Radius. The radius estimate will be displayed.

   You also can fill in the risks and consequences of the release. Consult the *Technical Guidance* for help with this step.

7. Once you have completed your radius calculation, click Save Changes to save this record. See "Plotting a threat zone on a map" on page 148 for the directions for plotting the screening zone on a map.

5. On the new record, the Amount Released box will be filled in with the maximum amount in largest container shown on the Chemicals in Inventory record. Concentration is set to 100 percent, and physical state at 68°F and LOC (level of concern) are filled in with the information shown under the Screening & Scenarios tab on the Chemical Library record for the substance. Weather conditions and release duration are set to the values shown in Table 4 on page 140.

Making scenarios calculations

To make scenarios calculations rather than screening calculations,

1. Select the Chemicals in Inventory record for the chemical for which you want to estimate a threat zone, then select New Screening/Scenarios Record from the Record menu.
2. Click Scenario if you are asked whether you want to create a screening record or alternative scenario. If you have already created a Screening record for this chemical, a new Scenario record will automatically be created for you, because there can be only a single Screening record for each chemical in an inventory.
3. Type a name for the screening in the Screening Name box.
4. The chemical's physical state at 68°F—solid, liquid, or gas—is automatically filled in. If the chemical is a liquid stored at or above its boiling point, select Near-Boiling from the menu to the right of the Liquid button. If it is a liquid stored below its boiling point, select Ambient from the menu. If it is a solid, select Solution if it's in solution, Powder if it's in powdered form, or Molten if it's in molten form. Your choice influences how CAMEO makes threat zone calculations (see the *Technical Guidance* for more details about how the calculations are made).
5. Adjust any storage and release conditions that need to be changed. Refer to Table 5 on page 146 to make your choices.
6. Click Estimate Threat Zone Radius. The radius estimate will be displayed.

   You also can fill in the risks and consequences of the release. Consult the *Technical Guidance* for help with this step.
7. Once you've completed your radius calculation, click Save Changes to save this record. See "Plotting a threat zone on a map" on page 148 for the directions for plotting the threat zone on a map.

TABLE 5. Items in Screening & Scenarios records[a].

Item	Description
Facility/Route Name	The name of the facility or route where this chemical is maintained or transported. Not editable.
Chemical	Name of the chemical. Not editable.
CAS	Chemical Abstract Service (CAS) number for this chemical. Not editable.
Screening Name (Scenario Name)	Name of this screening or scenario.
In Inventory	Checked automatically if this Screening & Scenarios record is associated with a facility. Not editable.
In Transit	Checked automatically if this if this Screening & Scenarios record is associated with a transportation route. Not editable.
Shipper	Checked automatically if the facility that maintains this chemical is a shipper (as indicated on its Facilities record). Not editable.
Under the Screening (Scenario) Description tab:	
Amount Released	Amount of chemical released, in pounds. For screening calculations, this is the maximum amount stored in one vessel or in connected vessels; you can use other values for alternative scenarios.
Concentration	Concentration of the chemical, in weight percent.
Release Duration	Release duration in minutes.
Physical State	Chemical's physical state (solid, liquid, or gas) at 68°F. Automatically filled in when you select a chemical from the list of EHS chemicals.
If stored in a container with a dike, enter surface area within dike:	If the container in which the chemical is stored is diked, type the area within the dike, in square feet.

TABLE 5. Items in Screening & Scenarios records[a]. (Continued)

Item	Description
Atmospheric Concentration Level of Concern	Or LOC. Atmospheric concentration of the chemical on which to base threat zone calculations, in grams per cubic meter. The value listed in the *Technical Guidance* is automatically filled in; you can type a different value if you're running a scenario rather than a screening.
LOC Description	Either "Greenbook LOC," if this is the *Technical Guidance* value, or "Other," if this is a different LOC.
Wind Speed	Wind speed in miles per hour (mph). For screening calculations, wind speed is set to 3.4 miles per hour. Your value for wind speed must be appropriate for the stability class that you selected (see Table 6 on page 151).
Wind From	Direction from which the wind is blowing, in degrees true north. This field remains blank when you perform screening calculations, because you can't predict wind direction in advance of a release.
Ground Roughness	A measure of the size of the obstacles on the ground that a dispersing chemical cloud must pass over. For screening calculations, ground roughness is set to Open Country. For a scenario, choose either Open Country (relatively smaller and fewer obstacles) or Urban or Forest (relatively more and larger obstacles) from this menu.
Stability Class	Atmospheric stability category that depends on wind speed and cloud cover. For screening calculations, stability class is set to F. For scenarios, see Table 6 on page 151 to choose a class.

TABLE 5. Items in Screening & Scenarios records[a]. (Continued)

Item	Description
Risk/Consequences/Overall Risk	Using the information you entered for the Screening/Scenarios calculations, you can rank the likelihood, consequences, and overall risk of a release of a chemical. Select "high," "medium," or "low" from each menu. (Refer to the Technical Guidance for more on risk assessment.)
Threat Zone Radius	Distance from the release point beyond which the predicted concentration of the airborne pollutant is expected to be below the LOC. At locations closer to the release point and directly downwind, concentrations are predicted to exceed the LOC. Because wind direction is not taken into account when this distance is calculated, a threat zone around a release point always forms a circle.
Estimate Threat Zone Radius	Visible only in Edit mode. Click this button to estimate the threat zone radius.
Under the Notes tab:	
Notes	Keep your own notes about a screening or scenario here.

a. You'll notice that there is no data field for ambient temperature. For all Screening & Scenarios calculations, temperature is assumed to be 68°F (20°C).

Plotting a threat zone on a map

To plot a threat zone on a MARPLOT map from a Screening & Scenarios record,

- Click Show on Map (or, from the Sharing menu, select MARPLOT, then Show on Map). If you've linked the facility or route record for which you're making this threat zone to a map object, MARPLOT will start up and will display the map, with the threat zone on it.

In the case of a facility, the threat zone will appear as a shaded circle around the facility, with a radius equal to the threat zone radius shown on the Screening & Scenarios record (Figure 6). A threat zone for a scenario

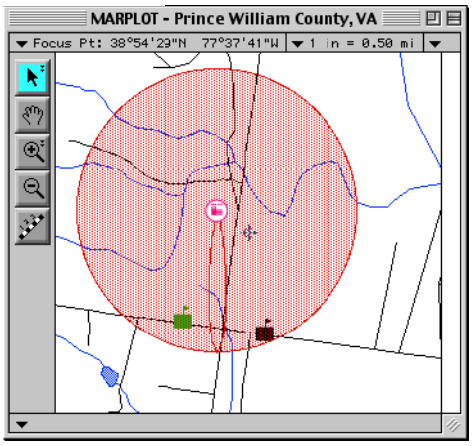


FIGURE 6. A threat zone plotted around a facility map symbol.

also includes a small oval area, representing the area that could potentially be affected if the wind blows from the direction you indicated when you entered the information about that scenario on its Screening & Scenarios record. Threat zones for screenings don't include an oval area because wind direction isn't specified in screenings.

In the case of a route, the threat zone will appear as a shaded corridor along the full length of the route, twice as wide at every point along the route as the calculated threat zone radius (Figure 7).

Working with threat zones on maps

You can find out which special locations could be at risk during a potential incident by using Special Locations along with MARPLOT and Screening & Scenarios. For instructions, check "Checking for special locations within a footprint or threat zone" on page 160.

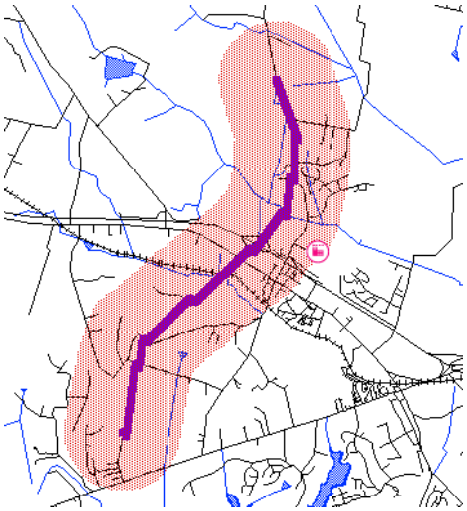


FIGURE 7. A threat zone plotted along a route.

All your threat zones will automatically be removed from the map when you quit (exit) MARPLOT. To delete a threat zone from your map without quitting (exiting) from MARPLOT, return to the Screening & Scenarios record from which you plotted the threat zone, and select MARPLOT, then Delete Scenario Object from CAMEO's Sharing menu. If you've plotted multiple threat zones on your map and would like to remove them all, while Screening & Scenarios is open, select MARPLOT, then Delete All Scenario Objects from the Sharing menu.

Choosing a stability class

Atmospheric stability class is one of the conditions you can adjust when making scenarios rather than screening calculations. The atmosphere is more or less turbulent at any given time, depending on the amount of incoming solar radiation as well as other factors. Meteorologists have defined six atmospheric stability classes, each representing a different degree of turbulence in the atmosphere. When moderate to strong incoming solar radiation heats air near the ground, causing it to rise and generating large eddies, the atmosphere is considered "unstable," or relatively turbu-

lent. Unstable conditions are associated with atmospheric stability classes A and B. When solar radiation is relatively weak, air near the surface has less of a tendency to rise and less turbulence develops. In this case, the atmosphere is considered "stable," or less turbulent, the wind is weak, and the stability class would be E or F. Stability classes D and C represent conditions of more neutral stability, or moderate turbulence. Neutral conditions are associated with relatively strong wind speeds and moderate solar radiation.

Use Table 6 to choose the stability class that best fits a given combination of wind speed and solar radiation strength:

TABLE 6. Stability class choices for day and nighttime (adapted from Turner 1994).

		DAYTIME			NIGHTTIME*	
		Incoming solar radiation:			Cloud cover:	
Surface Wind Speed		Strong	Moderate	Slight	> 5/10	< 5/10
Miles per hour	Meters per second					
< 4	< 2	A	A–B	B	E	F
4 to 7	2 to 3	A–B	B	C	E	F
7 to 11	3 to 5	B	B–C	C	D	E
11 to 13	5 to 6	C	C–D	D	D	D
> 13	> 6	C	D	D	D	D

Choose D for completely overcast conditions during day or night.

*Nighttime is the period from 1 hour before sunset to 1 hour after sunrise.

What are the differences between Screening & Scenarios, ALOHA, and RMP endpoint distances?

Three kinds of hazard prediction can seem very similar on first encounter:

- the *threat zone* you estimate using Screening & Scenarios.
- the *footprint* produced by ALOHA, CAMEO's gas dispersion model. ALOHA's footprint is defined as the area downwind of an accidental release where chemical concentrations in the air at about ground level may be high enough to be of concern.
- the *endpoint distance* you estimate when you perform an offsite consequence analysis under the Risk Management Planning Rule (or RMP Rule; see "CAA 112(r)" on page 275). An endpoint distance represents the distance to a particular level of hazard, such as a toxic gas concentration or heat radiation intensity. You may have used the RMP*Comp program (see "RMP*Comp" on page 9) or similar software to estimate endpoint distances.

First, what's the difference between a threat zone from Screening & Scenarios and ALOHA's footprint? Screening & Scenarios makes the simplified threat zone calculations described in the *Technical Guidance*. ALOHA makes a footprint estimate by taking into account many factors—such as additional properties of the chemical, weather conditions, and the specific characteristics of the release source—that are not included in Screening & Scenarios calculations. ALOHA calculations are more complex, and often may more accurately predict the effects of a release.

Second, an endpoint distance for an offsite consequence analysis is similar in concept to a threat zone radius—so how are they different? At first glance, the hazard analysis procedures described in the *Technical Guidance* and implemented in Screening and Scenarios look similar to the RMP consequence analysis procedures specified by the RMP Rule. For example, both the RMP Rule and the *Technical Guidance* specify F stability and 3.4 miles per hour (1.5 meters per second) wind speed conditions for worst-case scenarios. But there are key differences between the two procedures:

- For many substances, the toxic endpoints specified in the RMP Rule differ from the LOCs ("Levels of Concern") specified in the *Technical Guidance*.
- Screening & Scenarios makes only Gaussian dispersion calculations, but the RMP Rule specifies that you must "appropriately account for gas density." That is, you must use another technique to model heavy gases (Gaussian calculations are designed for neutrally buoyant gases).
- While the *Technical Guidance* mandates rural terrain for all worst-case scenarios, the RMP Rule specifies that you should choose either urban or rural terrain conditions, depending on which choice best describes the terrain around the facility.
- Both the *Technical Guidance* and the RMP Rule specify that toxic gases should be assumed to be released over a 10-minute period. But the *Technical Guidance* specifies that the dispersion distance then be estimated by treating the release as a steady-state (infinite-duration) emission, at the rate that would result in the release of the entire quantity of the substance in 10 minutes. In contrast, the RMP Rule specifies that the distance be estimated by treating the release as an emission lasting only 10 minutes. This difference in method may seem obscure, but it can make a big difference. Distances estimated using the *Technical Guidance* method can be substantially longer than distances estimated using the RMP Rule method.

Here are the key points to remember:

- For emergency response, use ALOHA, not Screening & Scenarios.
- Don't use Screening & Scenarios to estimate endpoint distances for the offsite consequence analyses required under the RMP Rule. You can use ALOHA or RMP*Comp for this task.
- Use Screening & Scenarios only for the hazards analyses described in the *Technical Guidance*, to meet requirements of EPCRA.